



ScrewCapper Module

Supplemental Manual

For use with the GLP systems Track Laboratory Automation System and the ScrewCapper Module
80004211-101 DRAFT

DRAFT

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Foreword

This supplemental manual is intended for the relevant laboratory staff operating the ScrewCapper Module.

Ensure that this supplemental manual is read and understood before startup is performed.

This supplemental manual contains information on the ScrewCapper Module properties and handling, and instructions and measures for maintaining its operational readiness.

The GLP systems Track laboratory automation system is a modular, customer-specific design. This supplemental manual refers only to the ScrewCapper Module. Ensure that the manuals relating to each single component are observed. In addition, observe the manuals for the connected analyzers.

The features in this supplemental manual were introduced in software V2.0.X.

Original instructions of this manual are written in English. Other languages are translations of the original instructions.

For an electronic copy of this manual, go to corelaboratory.abbott/ifu.

For laboratory professional use only.

This manual is supplemental to the GLP systems Track Operations Manual. Refer to the GLP systems Track Operations Manual for the following information:

- System security
- Customer service
- Intended use
- Disclaimers
- GLP systems Track warranty statement for USA customers only
- GLP systems Track agency approvals
- Intellectual Property statement
- Key to symbols
- Manufacturer and distributor
- Covers, hoods, and sensors
- Requirements for handling the specimens
- Operator responsibility
- Biological hazards
- Precautions
- Spill cleanup
- Requirements for decontamination
- Glossary

Only use the operating instructions in the GLP systems Track Operations Manual with an Input/Output Module with list number (LN) 04Z96-02 or higher or a Tube Assessment Module with LN 04Z99-02 or higher. If necessary, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

General safety information, page 7

Proprietary statement, page 8

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General safety information

Before operating the ScrewCapper Module, read and understand the safety information in this manual.

For information about actions or conditions that can affect system performance, carefully review the operational precautions and limitations in the GLP systems Track Operations Manual.

To become familiar with safety icons on the module and in this manual that indicate potentially hazardous situations, review the hazards in the GLP systems Track Operations Manual. Comply with the hazard and safety information to minimize the potential for harm to personnel and damage to the laboratory environment.

The sections for operational precautions and limitations and for hazards in the GLP systems Track Operations Manual contain supplemental information. Do not use the supplemental information to supersede workplace safety requirements. Review any significant differences between the supplemental information and the workplace safety requirements with management or a workplace safety representative.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause unwanted operation.

This device complies with Industry Canada license-exempt RSS standards. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause unwanted operation of the device.

The ScrewCapper Module is state-of-the-art. However, residual dangers exist. The safety instructions must be read and observed. The manufacturer accepts no liability for failure to observe the safety instructions.

Refer to the GLP systems Track Operations Manual for the complete listing of all safety information.

Related information...

Read me first, page 5

Proprietary statement

The ScrewCapper Module system documentation (© 2023 Abbott. All rights reserved.) and software programs are protected by copyright.

The software and manual were developed solely for use with the laboratory automation system as specified in the operating instructions.

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Related information...

[Read me first](#), page 5

Introduction

The GLP systems Track is a modular laboratory automation system (LAS) designed to automate pre-analytical and post-analytical processing, including sample handling, in order to automate sample processing in clinical laboratories. The system consolidates multiple analytical instruments into a unified workflow. This module includes a built-in touchscreen, a user interface that functions as a central operating and display element. The ScrewCapper Module is a module of the GLP systems Track that may be included in an LAS configuration.

Related information...

[ScrewCapper Module overview](#), page 10

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ScrewCapper Module overview

The ScrewCapper Module tightly caps secondary screw cap tubes as used by the Aliquot Module with ScrewCaps to ensure safe shipping of samples.

The functions of the module are controlled centrally by the Track Sample Manager.

Related information...

[Use or function](#), page 9

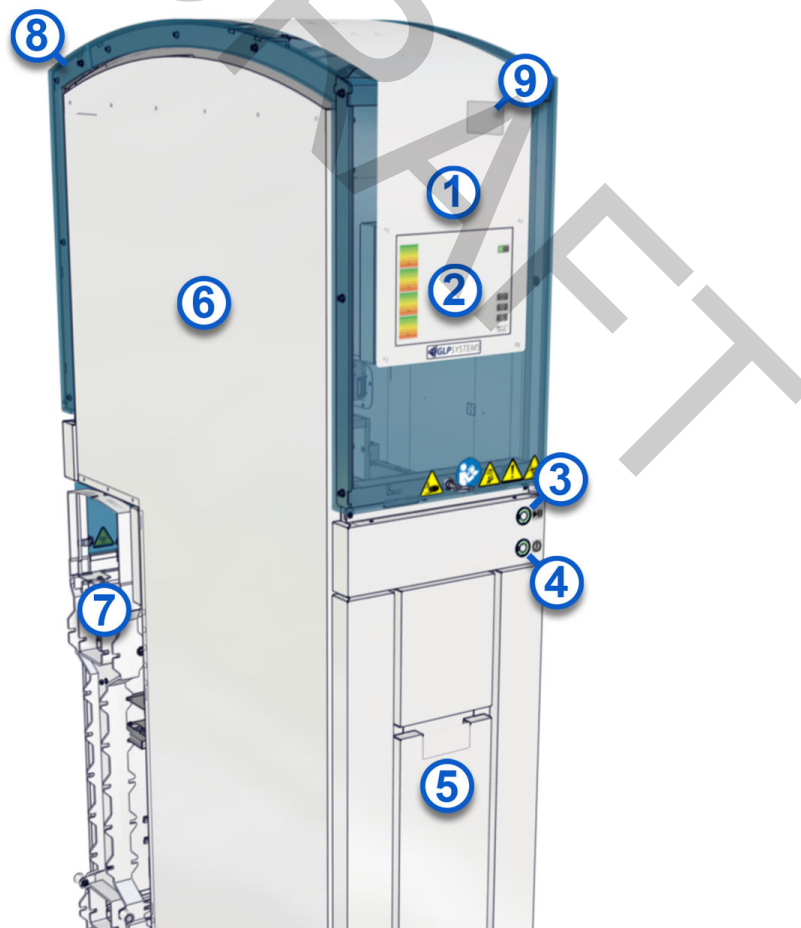
[Design and function](#), page 10

[Descriptions of module statuses](#), page 16

Design and function

The ScrewCapper Module consists of the following components:

Figure 1: Exterior front view of the ScrewCapper Module



Legend:

1. Front module cover: Protects the operator from injury and keeps the loading area free from dust. The module cover can be opened from the front.



CAUTION: Mind or watch your hands. The front and rear module covers can be opened **only** with the key and **only** by a trained operator. Before opening the module cover and reaching into the module, place the module offline. This action prevents the robot from moving after its initiated movement is completed. If the module is online when the module cover is opened, the robot slows down but does not stop. **Keep away from the moving robot and close the module covers as soon as possible.**

2. Monitor: Functions as the central operating and display element. The monitor is located on the front module cover.
3. Online/Offline push button with pause function: Transitions the module status to Online, Offline, or Pause. The Online/Offline push button is located on the front of the module.
4. On/Off push button: Powers on and powers off the module. The On/Off push button is located on the front of the module.
5. Pullout compartment: Contains the revolvers with ScrewCaps and the conveyor tube.
6. Housing: Contains the module's lane element, AccessPoint with clamping jaws, and the conveying tube. The interior of the housing is where secondary screw cap tubes are capped with ScrewCaps.
7. Track with adjacent lane element: Routes the CARs with open secondary screw cap tubes to the AccessPoint with clamping jaws.
8. Rear module cover: Protects the operator from injury and keeps the loading area free from dust. The cover can be opened from the rear of the module.



CAUTION: Mind or watch your hands. The front and rear module covers can be opened **only** with the key and **only** by a trained operator. Before opening the module cover and reaching into the module, place the module offline. This action prevents the robot from moving after its initiated movement is completed. If the module is online when the module cover is opened, the robot slows down but does not stop. **Keep away from the moving robot and close the module covers as soon as possible.**

9. Module serial number label: Located in the interior of the module.

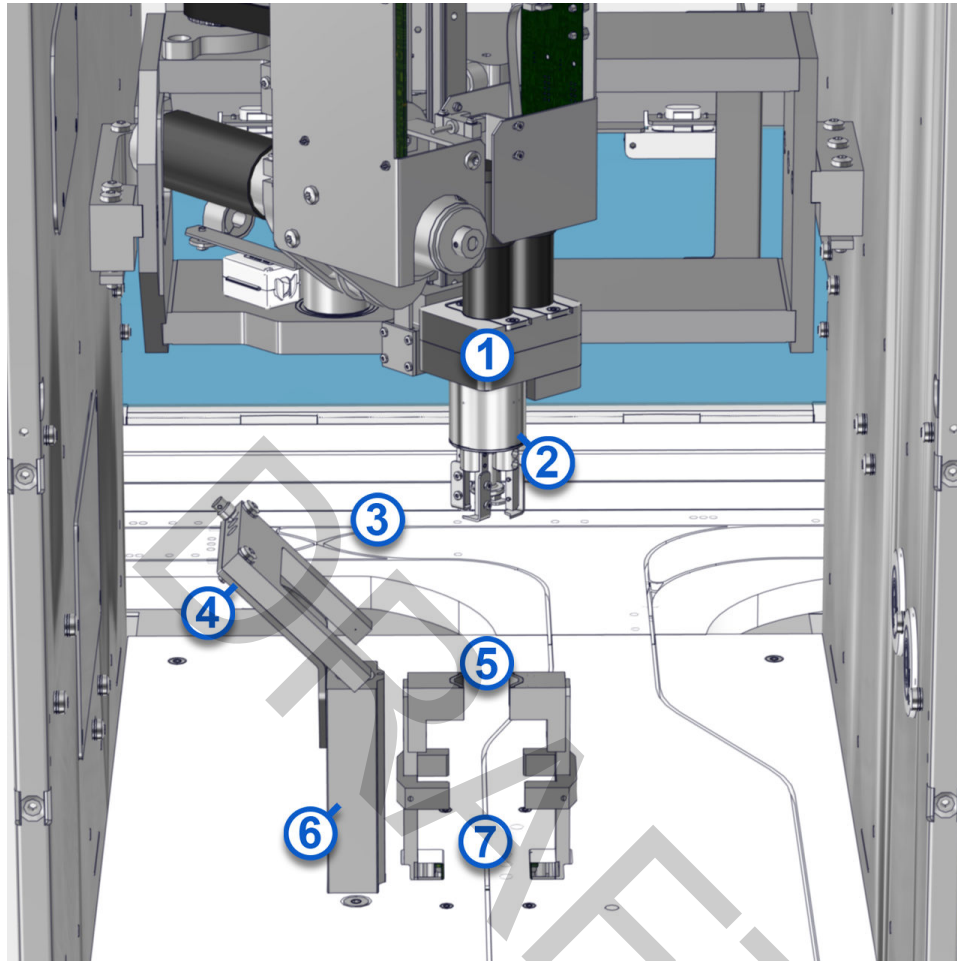
Figure 2: Exterior rear view of the ScrewCapper Module



Legend:

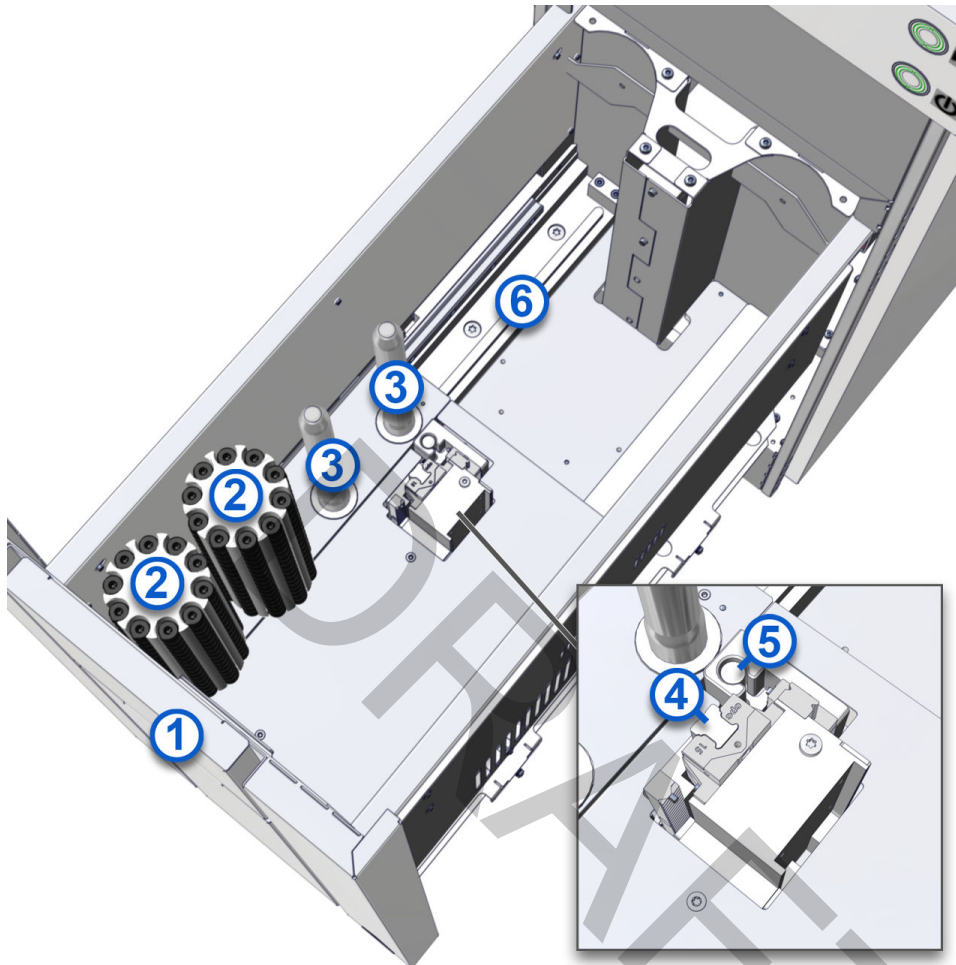
1. Module flap: Used to access the track inside the module.

Figure 3: Interior view of the ScrewCapper Module

**Legend:**

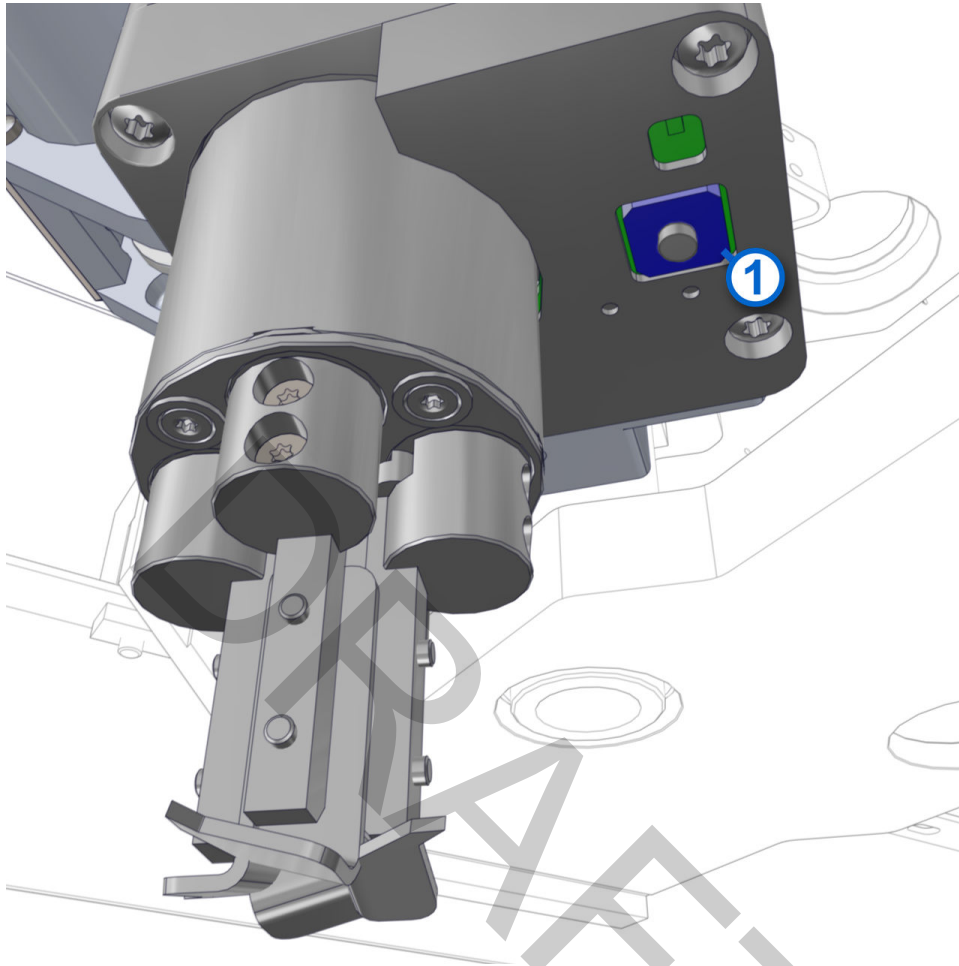
1. Robot: Uses the robot gripper to cap secondary screw cap tubes with ScrewCaps.
2. Robot gripper: Grips ScrewCaps to cap secondary screw cap tubes.
3. Entry lane element from track: Guides CARs with open sample tubes to the AccessPoint.
After being capped with ScrewCaps, the secondary screw cap tubes are routed to the track. They are then routed to an output area.
4. Sensor on conveying tube: Determines whether there is a ScrewCap at the removal position.
5. AccessPoint with clamping jaws: Holds the secondary screw cap tube while the secondary screw cap tube is being capped.
6. Conveying tube: Transports ScrewCaps into the interior.
7. Lane element in module: Guides secondary screw cap tubes through the interior of the ScrewCapper Module to be capped.

Figure 4: Pullout compartment



1. Pullout compartment: Contains the revolvers with ScrewCaps.
2. Revolvers with ScrewCaps: Hold ScrewCaps in stacks.
3. Revolver holder: Holds the revolver in an upright position.
4. Lift unit: Uses a conveying punch to move ScrewCaps inside the revolver from the bottom to the top of the removal position through the conveying tube. The lift unit is guided vertically on a guide rail.
5. Conveying punch: Stacks ScrewCaps inside the revolvers from bottom to top.
6. Linear axis: Positions the revolvers with ScrewCaps within the pullout compartment.

Figure 5: Release button

**Legend:**

1. Release button: Is used to open the robot gripper manually.

Related information...

[ScrewCapper Module overview](#), page 10

[ScrewCaps](#), page 15

ScrewCaps

ScrewCaps are consumables for the ScrewCapper Module of GLP systems Track. These are disposable ScrewCaps for sealing secondary screw cap tubes. This type of closure supports safe transport in accordance with UN 3373.

Figure 6: ScrewCaps



Legend:

1. Revolver filled with ScrewCaps
2. ScrewCap

Related information...

Design and function, page 10

Descriptions of module statuses

Module status refers to the operational modes of the module. The module has the following statuses:

- | | |
|------------|---|
| On | The On/Off push button is illuminated steady green. |
| Off | The On/Off push button is illuminated blinking green. |

Online	The module is in automatic mode. The Online/Offline push button is illuminated steady green and the arrow area of the Online/Offline button is green.
Offline	The module is in standby mode. The Online/Offline push button is illuminated steady yellow and the arrow area of the Online/Offline button is gray.
Pause	The module is briefly inactive. The Online/Offline push button is illuminated blinking green and the arrow area of the Online/Offline button is blinking green.
Error	An error has occurred on the module. The Online/Offline push button is illuminated steady red.

Related information...

[ScrewCapper Module overview](#), page 10

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Introduction

For optimal system performance, the ScrewCapper Module must be correctly installed. After the system has been installed, it must be configured to meet individual laboratory requirements.

Related information...

Installation requirements, page 20

Main menu screen, page 22

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Installation requirements

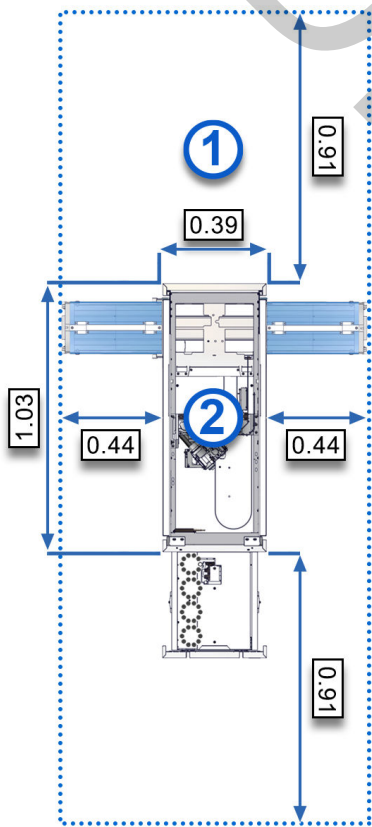
The ScrewCapper Module may only be installed indoors. Water connections are not required. Contact an Abbott Laboratories representative or an authorized service representative for more information about service requirements. Facilities must fulfill the floor area and height requirements.

Table 1: Floor area specifications

Evenness tolerance requirement	Permissible deviation: ± 5 mm over 15 m
Compensation with adjustable feet	Maximum of 10 mm
Material requirement	Incompressible material such as concrete

NOTE: The module may be fixed to the floor in certain states (Utah/California).

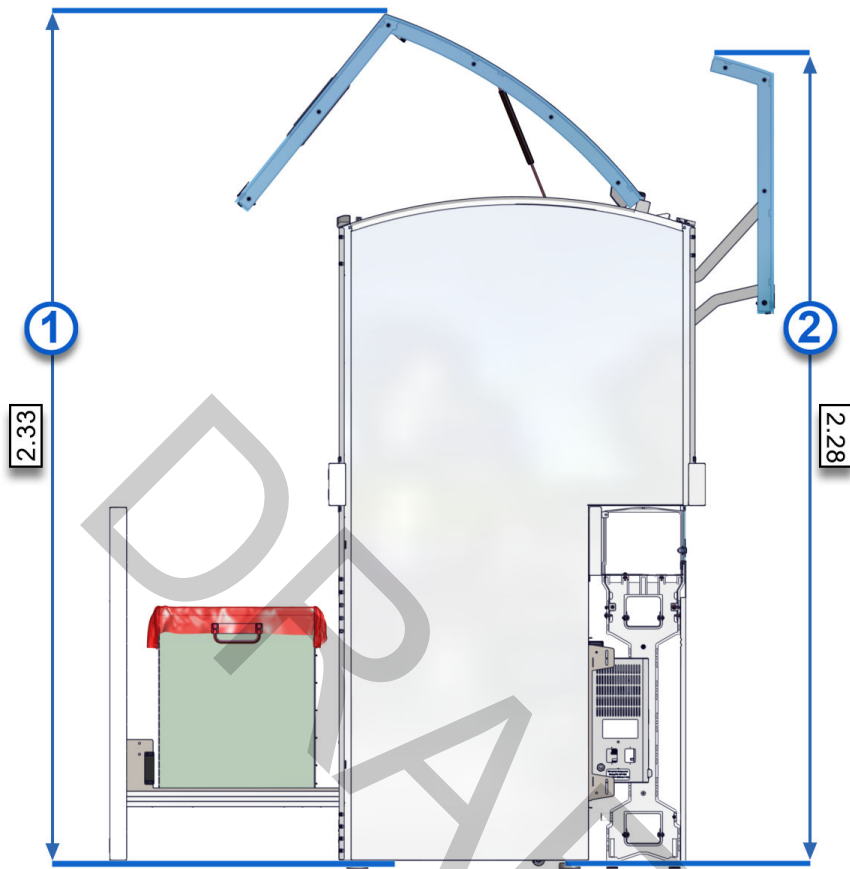
Figure 7: Floor area measurements in meters



Legend:

- 1. Work and service area
- 2. ScrewCapper Module

Figure 8: Height measurements in meters

**Legend:**

1. Front module cover opened
2. Rear module cover opened

Related information...

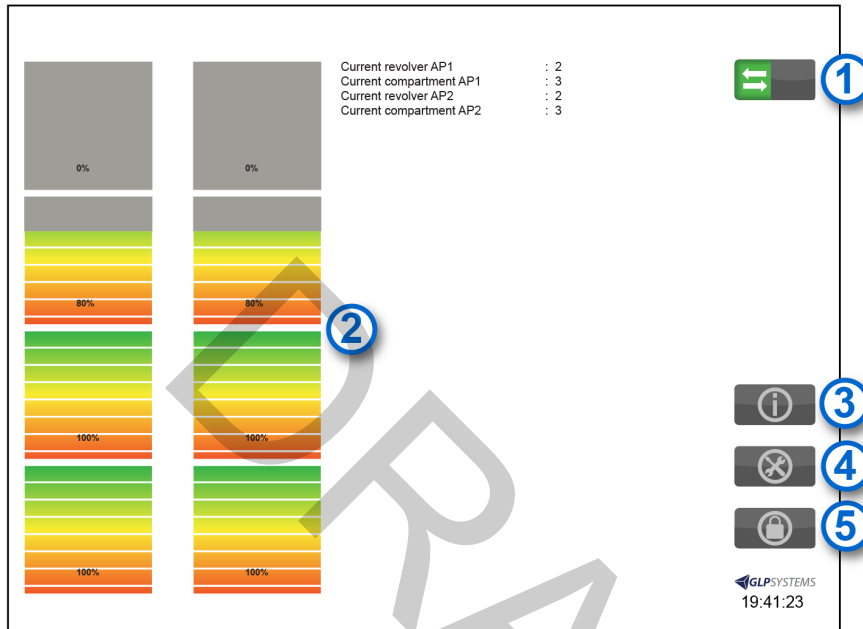
Installation procedures and special requirements, page 19

Technical data, page 32

Main menu screen

After successful initialization of the ScrewCapper Module, the Main menu screen is displayed.

Figure 9: Main menu screen



Legend:

1. **Online/Offline** button with pause function: Places the module online and offline, and pauses the module.
2. **ScrewCap revolver supply indicator**: Indicates the percentage of ScrewCaps remaining in each revolver.
3. **Information** button: Navigates to the Information screen.
4. **Configuration** button: Navigates to the Configuration screen.
5. **Login** button: Navigates to the Login screen.

Related information...

[Installation procedures and special requirements](#), page 19

[Login screen](#), page 22

[Information screen](#), page 24

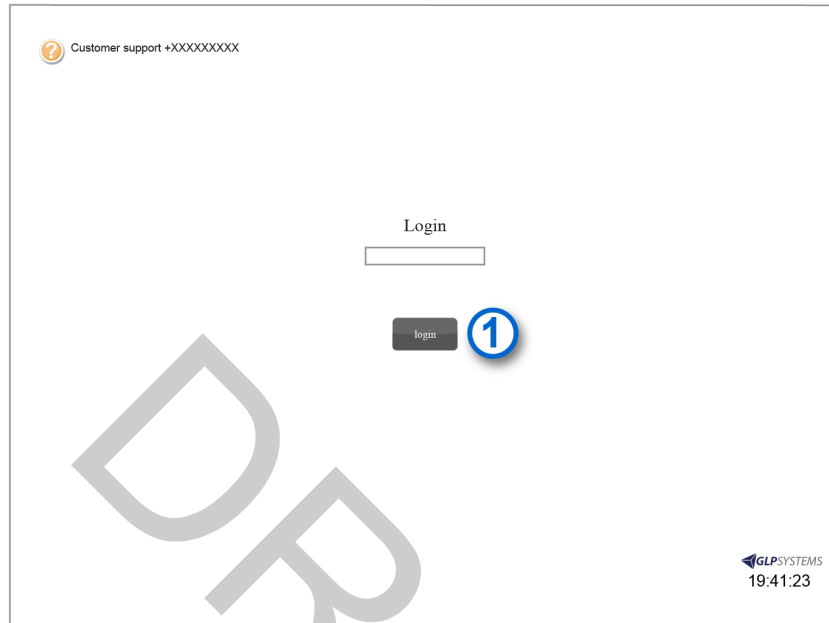
[Configuration screen](#), page 26

Login screen

The Login screen for the configuration manager is displayed if a login and password have been defined during installation.

NOTE: Configuration of the operator login is performed by an Abbott Laboratories representative or an authorized service representative.

Figure 10: Login screen



Legend:

1. **Login** button

Related information...

[Main menu screen](#), page 22

[Access the Login screen](#), page 23

Access the Login screen


Prerequisite A password was defined during installation.

NOTE: The **Login** button is available only to an Abbott Laboratories representative or an authorized service representative.

Required module status Online or Offline

Perform this procedure to access the Login screen on the module.

NOTE: Configuration of the operator login is performed by an Abbott Laboratories representative or an authorized service representative.

1. On the Main menu screen, tap the **Login** button .
2. On the Login screen, enter a user name and password.

- To return to the Main menu screen, tap **Login**.


Related information...

[Login screen](#), page 22

Information screen

The Information screen on the module displays the following module status information:

Display ID	The name of the display component.
Display IP address	The IP address of the display component.
Display MAC address	The MAC address of the display component Ethernet port.
Display sms4display build	The firmware version of the display component.
Display libsms4json build	The version of the JSON library of the display component.
Display Qt version executable/environment	The version of the Qt framework library used by the display component.
Display OS/Kernel	The operating system version of the display component.
CAN available	The indicator for whether the display has a CAN connection.
Display memory total/free MB	The free memory of the display component.
Module build	The firmware version of the module controller.
Module MAC	The MAC address of the module controller Ethernet port.
Module IP	The IP address of the module controller.
ControllerId	The ID of the module controller.
ControllerName	The name of the module controller.
Module up - time in minutes	The time elapsed since the start.
Module samples managed	The current number of samples being managed by the module.

Module input operations	The number of samples placed on the track since the start.
Module output operations	The number of samples moved from the track since the start.
Module controller status	The current internal status of the module controller.
Active Error	The message code of the currently active error.
Last active error	The message code of the last active error.
Barcode read enabled	The indicator for whether a bar code reader has been activated.
Robot script version	The script version for the robot controller.
Robot operations	The number of movements the robot has performed since the start after the latest software was installed.
Robot lost grips	The number of robot grips that have failed since the start after the latest software was installed.
Module total operation time	The time elapsed since the start in seconds.
Exit button 	Navigates to the Main menu screen.

Related information...



[Main menu screen](#), page 22

[Access the Information screen](#), page 25

Access the Information screen

Required module status Online or Offline

Perform this procedure to access the Information screen on the module.

1. On the Main menu screen, tap the **Information** button .
2. On the Information screen, tap the **Exit** button  to return to the Main menu screen.

Related information...

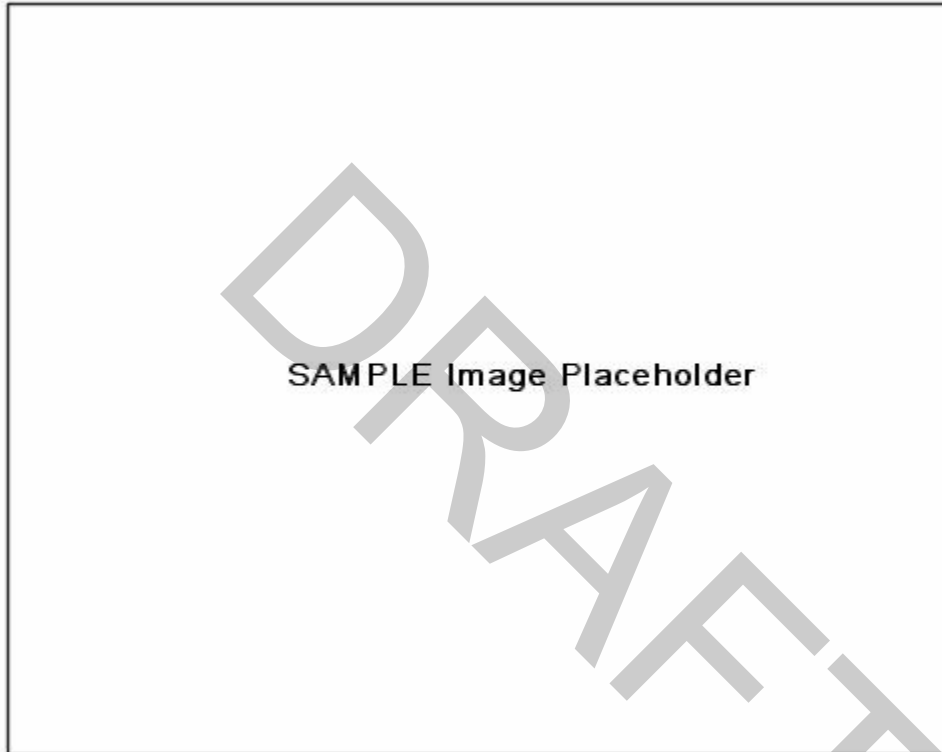
[Information screen](#), page 24

Configuration screen

The Configuration screen on the module displays the following screen elements.

NOTE: Only the **AreaTypes** button is available to the operator. The other buttons are available only to an Abbott Laboratories representative or an authorized service representative.

Figure 11: Configuration screen



Legend:

1. **AreaTypes** button: Navigates to the Create AreaTypes screen.
2. **Network** button: Navigates to the Network setting screen.
3. **teach** button: Navigates to the Teaching screen.
4. **robot settings** button: Sets the performance properties of the robot.
5. **logfile** button: Navigates to the log files.
6. **cfg manager** button: Navigates to the Configuration settings screen.
7. **test barcode reader** button: No functionality is available.
8. **config barcode types** button: No functionality is available.
9. **stop CAN log** button: Stops or starts the recording of one or more log files. The button toggles between **stop CAN log** and **start CAN log**.
10. **Display log level** button: Navigates to the Display logfile level settings screen.
11. **Exit** button: Navigates to the Main menu screen.

Related information...



[Main menu screen](#), page 22

[Access the Configuration screen](#), page 27

Access the Configuration screen

Required module status Online or Offline

Perform this procedure to access the Configuration screen on the module.

1. On the Main menu screen, tap the **Configuration** button .
2. On the Configuration screen, tap the **Exit** button  to return to the Main menu screen.

Related information...

[Configuration screen](#), page 26

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Introduction

In the interior of the ScrewCapper Module, open secondary screw cap tubes are tightly capped with ScrewCaps. To do so, CARs transporting the sample tubes are stopped at the AccessPoint, and the sample tube to be sealed is held in place with the AccessPoint clamping jaws. The robot gripper removes a ScrewCap from the stack and uses it to seal the sample tube.

The ScrewCaps are located in revolvers in the pullout compartment. The ScrewCaps are conveyed to the interior of the ScrewCapper Module through the conveying tube. A sensor about above the conveying tube detects if a ScrewCap is available. The ScrewCapper Module forwards the supply information of the number of ScrewCaps to the Track Sample Manager.

The ScrewCapper Module integrates with the GLP systems Track.

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Introduction

Before operating the ScrewCapper Module, become familiar with system performance characteristics.

Related information...

Technical data, page 32

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Technical data

Table 2: System characteristics

Throughput	300 tubes per hour NOTE: The stated performance of the module is based on measurements taken in a given test environment. The actual performance may vary significantly, depending on the use scenario adopted in the track system.
Temperature stability of capped tubes	-80° C to ambient temperature
Capacity for consumables	680 ScrewCaps (4 revolvers of 170 ScrewCaps each storage capacity)
Dimensions	40 cm (width) x 103 cm (depth) x 200 cm (height)
Weight	267 kg
Altitude	30.8 m (100 ft) below sea level to 2000 m (6561 ft) above sea level
Ambient temperature	During operation: +15°C to +30°C During transport and storage: -20°C to +60°C
Relative humidity	30% to 80% (non-condensing)
Waste heat	234 kJ/h average at full load
Sound pressure level	Maximum of 65 dBA
Supply voltage	230 V AC (+/- 10%)
Supply frequency	50 Hz to 60 Hz
Power requirement	1.22 kW
Power consumption	<ul style="list-style-type: none"> Standby: 52 W Average at full load: 65 W Short-time peak at full load: 170 W

Related information...

[Performance characteristics and specifications](#), page 31

[Sample processing specifications](#), page 32

[Installation requirements](#), page 20

Sample processing specifications

Due to specific sample processing possibilities on the modules of the GLP systems Track and due to manufacturer specifications of the connected analyzers, there are deviations and restrictions for sample processing.

ScrewCapping is only for secondary sample tubes out of the Aliquot module.

Table 3: Sample tube technical data

Tube type	Secondary sample tubes (screw) only
Cap type	Greiner ScrewCaps only

For more information regarding sample tube technical data, refer to the GLP systems Track Operations Manual.

Related information...

Technical data, page 32

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Introduction

This section provides instructions on how to perform normal operating procedures on the ScrewCapper Module. Before operating the system, become familiar with hardware components of the system.

Related information...

ScrewCapper Module operation, page 36

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ScrewCapper Module operation

The module-specific function selection for the ScrewCapper Module is displayed on the Main menu screen. The operator selects the corresponding function and follows the instructions. Ensure that the module covers are closed and locked before operating the module.

Related information...

Operating instructions, page 35

Open and close the front and rear module covers, page 36

Cycle power to the module, page 38

Power on the module, page 39

Power off the module, page 41

Place the module online, page 41

Place the module offline, page 42

Pause the module, page 42

Deactivate pause mode, page 43

Replace revolvers, page 43

Open and close the front and rear module covers

Required materials Key

Required module status Offline

Perform this procedure to open and close the front and rear module covers.



CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury can occur when module covers are opened and closed.
- Protect the head when working on modules with open module covers.
- Frequently observe the functionality of the opening mechanism. Regular visual inspection of the covers is necessary during maintenance to ensure proper operation.



CAUTION: Mind or watch your hands. The front and rear module covers can be opened and closed **only** by a trained operator. Finger pinches can occur between two adjacent modules if module covers are closed by holding their sides. Use caution when opening and closing the front and rear module covers.

1. At the lower end of the front or rear module cover, insert the key [1] into the lock [2].

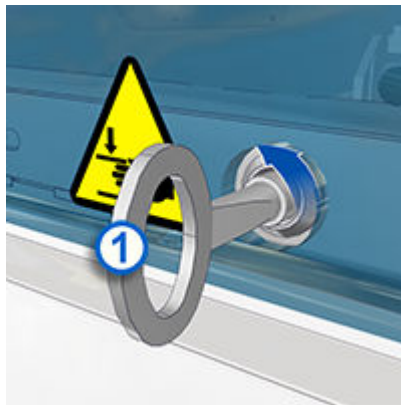
NOTE: Images of the rear module cover and the module flap cover are not shown.

Figure 12: Front module cover lock



2. While turning the key [1] counterclockwise a quarter turn, begin lifting the front module cover [3] or rear module cover.

Figure 13: Key



3. Remove the key [1] from the lock [2].
4. Fully lift open the front module cover [3] or rear module cover.

Figure 14: Front module cover opened



5. To close the front module cover [3] or rear module cover, carefully pull down the cover.
6. Press lightly on the cover until it is secured.
7. Place the module online.

Related information...

ScrewCapper Module operation, page 36

Place the module online, page 41

Place the module offline, page 42

Cycle power to the module

Prerequisite

The module has completed all processing and no samples are present on the module.

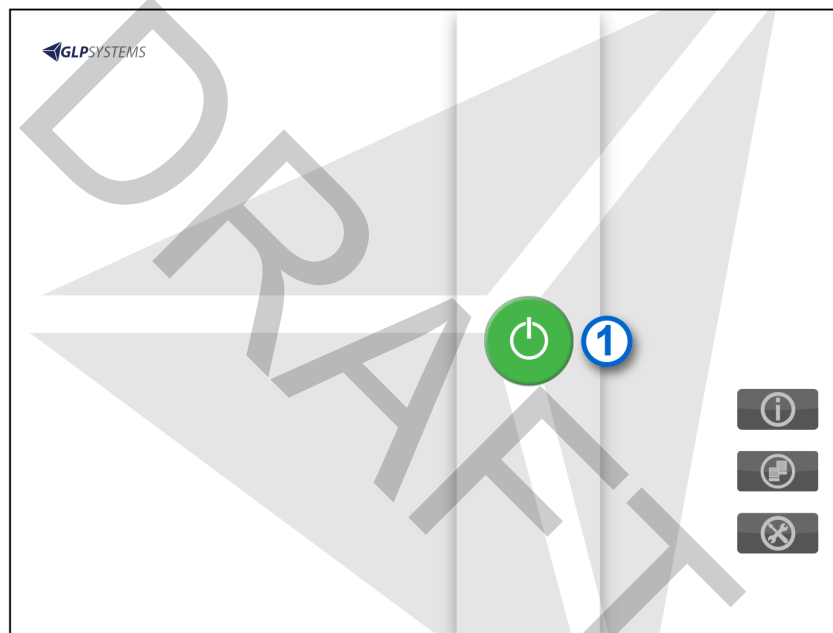
Perform this procedure to cycle power to the module to reestablish communication among the system components or to troubleshoot the module.

1. To power off the module, press the On/Off push button for a minimum of 3 seconds.
2. Wait for the module to power off.
3. After the module is powered off, wait for a minimum of 1 minute.
4. To power on the module, press the On/Off push button for a minimum of 3 seconds.

The On/Off push button blinks green at a higher rate and the module starts.

The Start screen is displayed. The **Start** button [1] turns from gray to green when the module is ready for initialization.

Figure 15: Start screen



5. Tap the **Start** button [1] to initialize the module.

A screen with a rotating animation is displayed. After the module is initialized, the Main menu screen is displayed.

Related information...

[ScrewCapper Module operation](#), page 36

Power on the module

Prerequisite

- The module is connected to the power supply.
- The On/Off push button is illuminated blinking green.

- Front and rear module covers must be closed and locked.

Required module status Off for more than 1 minute

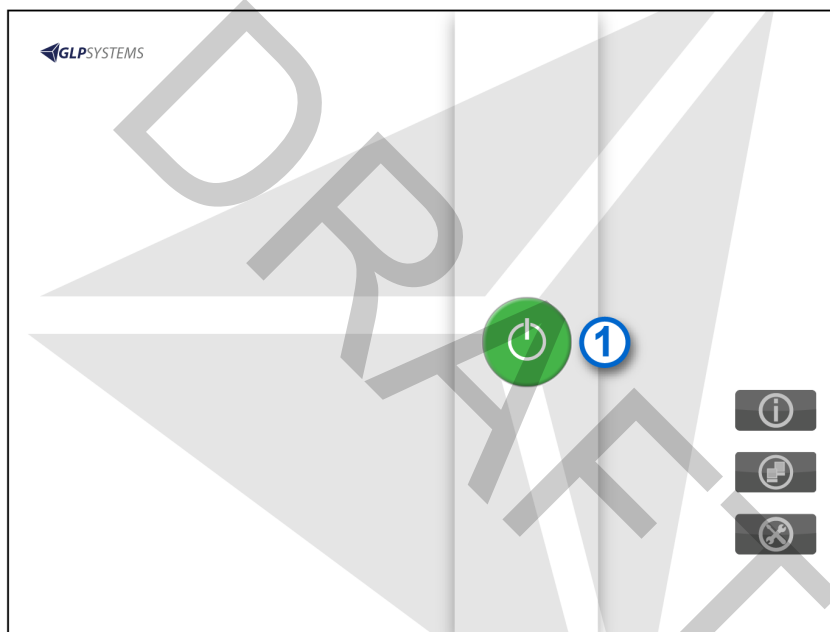
Perform this procedure to power on the module.

1. Press the On/Off push button for a minimum of 3 seconds.

The On/Off push button blinks green at a higher rate and the module starts.

The Start screen is displayed. The **Start** button [1] turns from gray to green when the module is ready for initialization.

Figure 16: Start screen



2. Tap the **Start** button [1] to initialize the module.

A screen with a rotating animation is displayed. After the module is initialized, the Main menu screen is displayed.

The On/Off push button is illuminated steady green.

Related information...

[ScrewCapper Module operation](#), page 36

[Open and close the front and rear module covers](#), page 36

[Design and function](#), page 10

[Power off the module](#), page 41

Power off the module

Prerequisite

- The On/Off push button is illuminated steady green.
- The module has completed all processing and no samples are present on the module.

Required module status

On

Perform this procedure to power off the module.

1. Press the On/Off push button for a minimum of 3 seconds.
2. Wait for the module to power off.

The On/Off push button is illuminated blinking green.

Related information...

[ScrewCapper Module operation](#), page 36

[Design and function](#), page 10

[Power on the module](#), page 39

Place the module online

Prerequisite

The Online/Offline push button is illuminated steady yellow and the arrow area of the **Online/Offline** button is gray.

Required module status

Offline

Perform this procedure to place the module online.

NOTE: Samples may be present in the module if the module was placed offline during processing.

1. Briefly press the Online/Offline push button or tap the gray arrow area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Online.

The Online/Offline push button is illuminated steady green and the arrow area of the **Online/Offline** button is green.

Related information...

[ScrewCapper Module operation](#), page 36

[Design and function](#), page 10

Place the module offline, page 42

Place the module offline

Prerequisite The Online/Offline push button is illuminated steady green and the arrow area of the **Online/Offline** button is green.

Required module status Online

Perform this procedure to place the module offline. All processes running in the module stop. CARs are no longer routed to the module.

NOTE: Samples in the module are not processed until the module is transitioned back to a status of Online.

1. Press the Online/Offline push button for a minimum of 3 seconds or tap the green arrow area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Offline.

The Online/Offline push button is illuminated steady yellow and the arrow area of the **Online/Offline** button is gray.

Related information...

ScrewCapper Module operation, page 36

Design and function, page 10

Place the module online, page 41

Pause the module

Prerequisite The Online/Offline push button is illuminated steady green and the arrow area of the **Online/Offline** button is green.

Required module status Online

Perform this procedure to pause the module. When the module is paused, all processing of new samples stop. No new samples in CARs route to the module. The Track Sample Manager indicates that the module status is Online.

1. Briefly press the Online/Offline push button or tap the gray area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Pause.

The Online/Offline push button is illuminated blinking green and the arrow area of the **Online/Offline** button is blinking green.

NOTE: If the module is paused for longer than 5 minutes, the module automatically transitions to a status of Offline.

Related information...

[ScrewCapper Module operation](#), page 36

[Design and function](#), page 10

[Place the module online](#), page 41

Deactivate pause mode

Prerequisite The Online/Offline push button is illuminated blinking green and the arrow area of the **Online/Offline** button is blinking green.

Required module status Pause

Perform this procedure to deactivate pause mode on the module.

1. Briefly press the Online/Offline push button or tap the gray area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Online.

The Online/Offline push button is illuminated steady green and the arrow area of the **Online/Offline** button is green.

Related information...

[ScrewCapper Module operation](#), page 36

[Design and function](#), page 10

[Pause the module](#), page 42

[Place the module online](#), page 41

Replace revolvers

Required module status Online



CAUTION: Risk of infection. The operator may be exposed to potentially infectious materials, such as patient samples, through contact with non-intact skin or mucous membranes. Wear personal protective equipment while operating the laboratory automation system.



CAUTION: Contamination hazard. Incorrect analysis results due to cross-contamination of the sample matter.

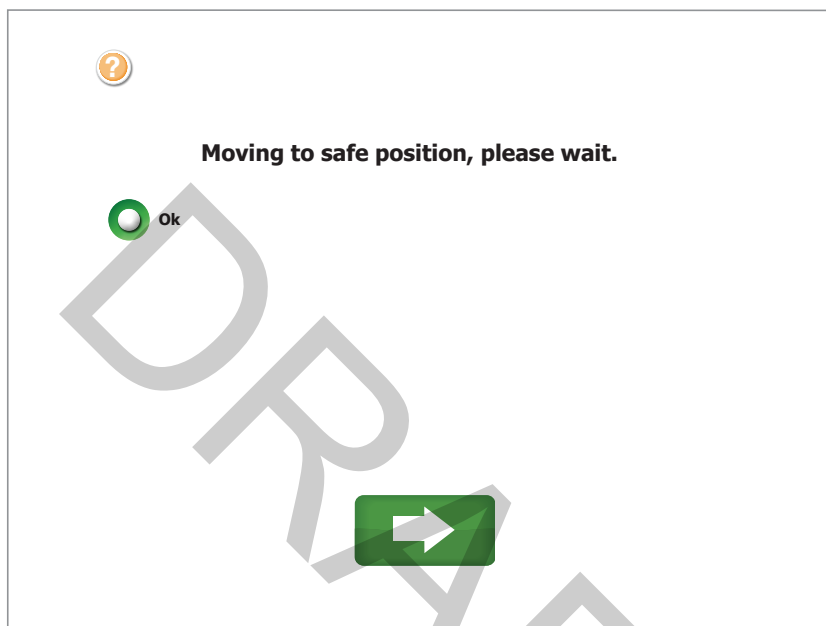
- Caps may not be reused.

- Always wear personal protective clothing during operation.

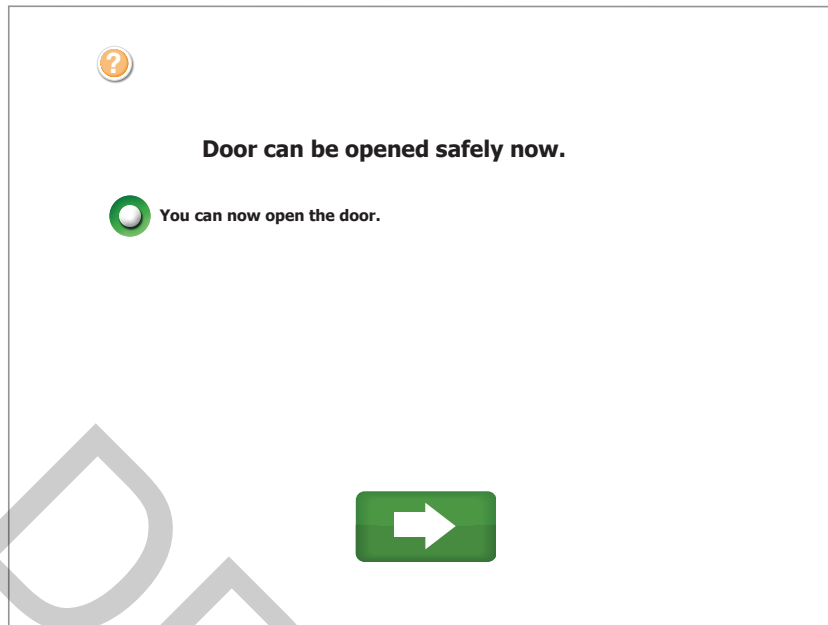
Perform this procedure to replace the revolvers.

1. Place the module offline.
 - A status message on the touchscreen user interface indicates the revolvers are moving to a safe position.

Figure 17: Monitor status -- wait

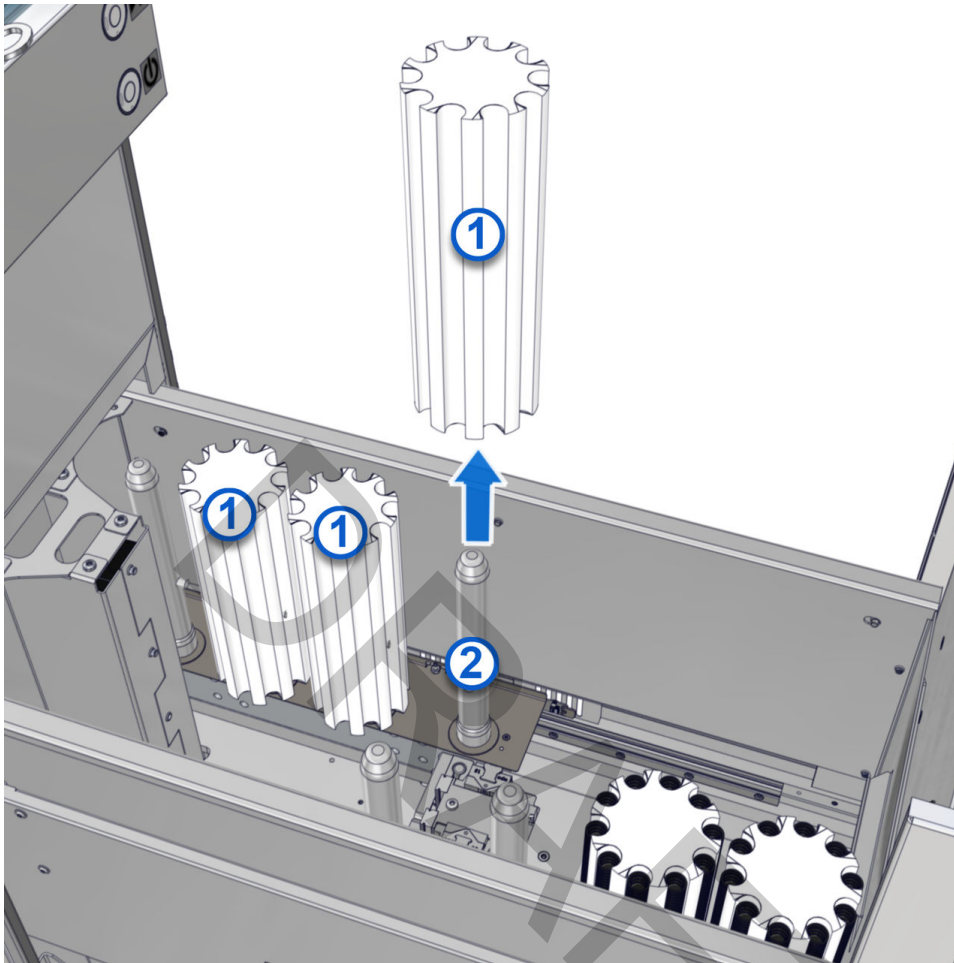


- As soon as the revolvers are in safe position, the status message indicates it is safe to open the pullout compartment.

Figure 18: Monitor status -- safe to proceed

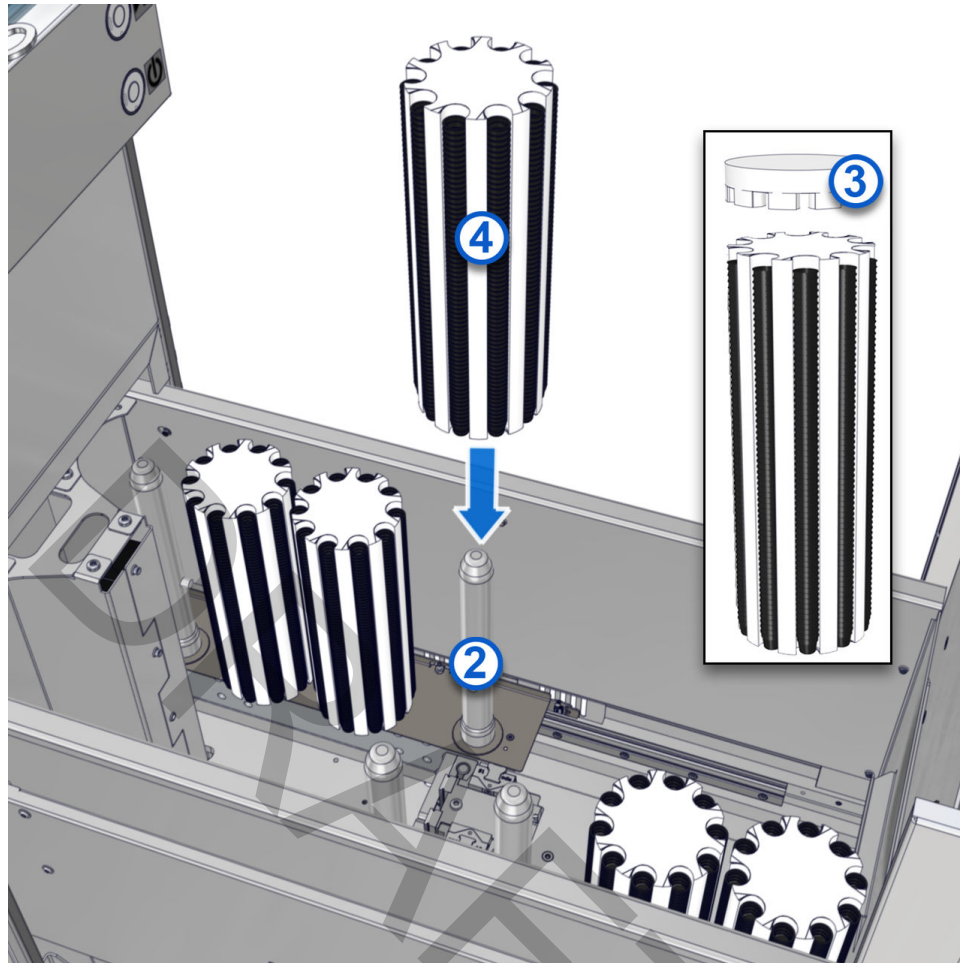
2. Open the pullout compartment.
3. Remove empty revolvers [1] by lifting the revolvers up from the revolver holders [2].

Figure 19: Revolver removal



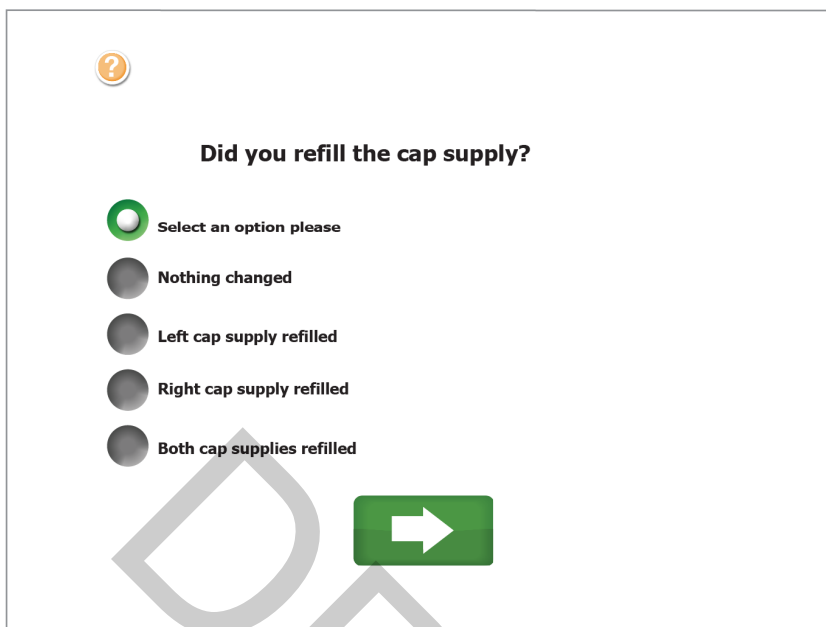
4. Install new revolvers.
 - Ensure the key in the bottom of each new revolver [4] aligns with the revolver holder [2]
 - Remove the cover from the new revolver
 - Install the revolver on the revolver holder.

Figure 20: Revolver installation



5. Push the pullout compartment until the pullout compartment contacts the end stop.
 - When the pullout compartment is closed a prompt is displayed on the touchscreen user interface.

Figure 21: Monitor status -- confirmation prompt



6. Select **Yes**, and confirm by pressing the green **Arrow** button.
7. Place the module online.

The pullout compartment is locked, and the module is online and ready for operation.

Related information...

ScrewCapper Module operation, page 36

Design and function, page 10

Place the module online, page 41

Place the module offline, page 42

Introduction

For optimal operator safety and accurate test results, comply with operational requirements, precautions, and limitations. Operators must be trained before they are allowed to operate the system. Failure to comply can affect system performance, and may cause damage to the system or may adversely affect test results.

For more information regarding operational precautions and limitations, refer to the GLP systems Track Operations Manual.

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Introduction

To minimize the potential for harm to personnel and damage to the laboratory environment, comply with the hazard and safety information.

This section contains supplemental information. Do not use the supplemental information to supersede workplace safety requirements. Review any significant differences between the supplemental information and the workplace safety requirements with management or a workplace safety representative.

For more information regarding hazards, refer to the GLP systems Track Operations Manual.


Related information...

Safety icons, page 52

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Safety icons

Safety icons are used on the system and in the system documentation to identify potentially dangerous conditions. Become familiar with these icons to know the type of potential hazard.

 **CAUTION: Radio-frequency identification (RFID) devices.** The operator should not change or modify RFID devices without approval by the party responsible for compliance. This action could void the operator's authority to operate the equipment.






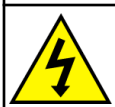





 **CAUTION: Radio frequency exposure.** The operator should be at least 20 cm from all RFID devices.

Table 4: Safety icons and descriptions

Icon	Description
	CAUTION: Biological RISKS Identifies an activity or an area where the operator may be exposed to potentially infectious material.
	CAUTION: Mind or watch your hands Identifies an activity or an area where the operator may be exposed to hand injuries.
	CAUTION: Overhead obstruction Identifies an activity or an area where the operator may be exposed to overhead obstructions.
	CAUTION: Sharp Element Identifies an activity or an area where the operator may be exposed to sharp elements.
	CAUTION: Possibility of electric shock Indicates the possibility of electric shock if procedural controls or engineering controls are not observed.
	CAUTION When used in this manual, this icon is accompanied by a description of the hazard and a related-information reference to safety content in this section. Examples include the following condition: CAUTION: Moving Parts Identifies an activity or an area where the operator may be exposed to moving parts.
	CAUTION: Power off mains disconnect switch from electrical supply Indicates that the mains disconnect switch must be powered off from the electrical supply for the maintenance of electrical equipment when a malfunction occurs or when left unattended. If more than one disconnect switch is provided, power off all switches to disconnect from electrical supply.

Icon	Description
	CAUTION: Protective conductor terminal Identifies an area where a terminal is connected to an external conductor or the terminal of a ground electrode.
	Observe operations manual Indicates that the operations manual must be read.
	WEEE: Waste Electrical and Electronic Equipment Indicates that the item needs to be disposed of in a separate waste collection for electrical and electronic equipment and must not be disposed of in the general waste or trash.

Related information...

[Hazards, page 51](#)

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Introduction

The appropriate service, maintenance, and diagnostics of the system are some of the most important aspects of a complete quality assurance program. A thorough service, maintenance, and diagnostic program:

- Minimizes downtime.
- Maintains records for inspection and accreditation.
- Maintains system performance to provide optimal test results.

NOTE: Only approved customer-replaceable components are permitted to be used.

Related information...

Cleaning and maintenance checks, page 56

Cleaning, page 57

Maintenance, page 62

Cleaning and maintenance checks

Dust can cause system malfunctions. The following checks are required on the ScrewCapper Module to maintain optimal system performance.

Table 5: Cleaning and maintenance checks

Check	Activity	Interval
Inspect the module for dust.	Carefully remove any dust as needed. If necessary, perform the following procedures: <ul style="list-style-type: none"> • <i>Clean the monitor</i>, page 57 • <i>Clean the module covers</i>, page 58 	Daily
Verify that there are no observed problems.	Resolve any observed problems as needed. See <i>ScrewCapper Module observed problems</i> , page 68.	Daily
Inspect the AccessPoints for contamination.	Perform <i>Clean the AccessPoint</i> , page 60 if necessary.	Daily
Verify that the robot gripper fingers are not worn, damaged, or dirty.	Perform <i>Clean the robot gripper</i> , page 60 or <i>Replace the robot gripper fingers</i> , page 62 if necessary.	Daily
Verify that no foreign objects are present on the module.	Remove any foreign objects.	Daily
Verify that the module covers are closed and locked.	Perform <i>Open and close the front and rear module covers</i> , page 36 to close the module covers if applicable.	Daily

Related information...

Service, maintenance, and diagnostics, page 55

Cleaning

Some system components may need to be cleaned because of normal use from daily system operations or because of spills.

IMPORTANT: Incorrect cleaning procedures may cause sample contamination. Inappropriate cleaning agents may cause damage to the ScrewCapper Module. Only allow trained personnel to clean the ScrewCapper Module. Only use the recommended cleaning agents.



CAUTION: Wear personal protective equipment while operating the laboratory automation system.



CAUTION: Biological RISKS. This activity or area may expose the operator to potentially infectious material.

NOTE: Ensure that all samples have completed processing on the module to prevent contamination of samples.

Related information...

[Service, maintenance, and diagnostics](#), page 55

[Weekly cleaning procedures](#), page 57

[As-needed cleaning procedures](#), page 58

Weekly cleaning procedures

Weekly cleaning procedures are required on the ScrewCapper Module.

Related information...

[Cleaning](#), page 57

[Clean the monitor](#), page 57

[Clean the module covers](#), page 58

Clean the monitor

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Required module status Off

Perform this weekly procedure to clean the monitor.

1. Ensure that the module covers are closed and locked before the monitor is cleaned.
2. Dampen a lint-free cloth with a surface disinfectant.
3. Carefully wipe the entire surface area of the monitor to remove any dust.

4. Wait until the monitor is dry to power on the module.

Related information...

Weekly cleaning procedures, page 57

Open and close the front and rear module covers, page 36

Power on the module, page 39

Power off the module, page 41

Clean the module covers

- Required materials**
- Antistatic plastic cleaner
 - Lint-free cloth

Required module status Offline

Perform this weekly procedure to clean the module covers.

1. Ensure that the module covers are closed and locked before the module covers are cleaned.
2. Dampen a lint-free cloth with an antistatic plastic cleaner.
3. Wipe the entire surface area of the module cover.
4. Let the module cover air-dry to allow an antistatic film to form.

Related information...

Weekly cleaning procedures, page 57

Open and close the front and rear module covers, page 36

Place the module online, page 41

Place the module offline, page 42

As-needed cleaning procedures

As-needed cleaning procedures are required on the ScrewCapper Module.



CAUTION: Risk of contamination and injury. During operation of the laboratory automation system (LAS), sample tubes and components may be damaged due to failure to comply with safe-use instructions. Spilled sample matter may cause infections due to contact with non-intact skin or mucous membranes.

- Wear personal protective equipment while operating the LAS. Avoid direct contact with the sample matter.
- Follow all hygiene regulations applicable to laboratory work.
- Only allow trained personnel to operate the LAS.

Related information...

[Cleaning](#), page 57

[Clean the interior](#), page 59

[Clean the pullout compartment](#), page 59

[Clean the robot gripper](#), page 60

[Clean the AccessPoint](#), page 60

Clean the interior

Required materials

- Handheld vacuum cleaner (recommended)
- Laboratory-grade surface disinfectant
- Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the interior.

1. Open the module cover.
2. Vacuum the surface of the lane elements.
3. Vacuum the guiding slot.
4. Dampen a lint-free cloth with a surface disinfectant.
5. Carefully wipe the surfaces of the interior to remove any dust.
6. Close the module cover.

Related information...

[As-needed cleaning procedures](#), page 58

[Open and close the front and rear module covers](#), page 36

[Place the module online](#), page 41

[Place the module offline](#), page 42

Clean the pullout compartment

Required materials

- Handheld vacuum (recommended)
- Laboratory-grade surface disinfectant
- Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the pullout compartment.

1. Open the pullout compartment.
2. Remove any spilled Recaps from the pullout compartment.
3. Vacuum the pull-out compartment.
4. Dampen a lint-free cloth with a surface disinfectant.
5. Carefully wipe the pullout compartment to remove any dust.
6. Close the pullout compartment.

Related information...

[As-needed cleaning procedures](#), page 58

[Place the module online](#), page 41

[Place the module offline](#), page 42

Clean the robot gripper

- Required materials**
- Laboratory-grade surface disinfectant
 - Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the robot gripper.

1. Open the module cover.
2. Dampen a lint-free cloth with a surface disinfectant.
3. Carefully wipe the robot gripper to remove any dust.
4. Close the module cover.

Related information...

[As-needed cleaning procedures](#), page 58

[Open and close the front and rear module covers](#), page 36

[Place the module online](#), page 41

[Place the module offline](#), page 42

Clean the AccessPoint

- Required materials**
- Laboratory-grade surface disinfectant
 - Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean each AccessPoint on the module.

Section 8

1. Open the module cover.
2. Dampen a lint-free cloth with a surface disinfectant.
3. Carefully wipe each AccessPoint to remove any dust.
4. Close the module cover.

Related information...

As-needed cleaning procedures, page 58

Open and close the front and rear module covers, page 36

Place the module online, page 41

Place the module offline, page 42

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Maintenance

The laboratory staff may perform procedures that are included in this manual. Procedures not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.



CAUTION: Risk of infection. The operator may be exposed to potentially infectious materials, such as patient samples, through contact with non-intact skin or mucous membranes. Wear personal protective equipment while operating the laboratory automation system.

NOTE: Ensure that all samples have completed processing on the module to prevent contamination of samples.

Related information...

[Service, maintenance, and diagnostics](#), page 55

[As-needed maintenance procedures](#), page 62

As-needed maintenance procedures

As-needed maintenance procedures are required on the ScrewCapper Module.

Related information...

[Maintenance](#), page 62

[Replace the robot gripper fingers](#), page 62

[Replace the clamping jaws on the AccessPoint](#), page 64

Replace the robot gripper fingers

Prerequisite Remove all samples from the module to prevent sample contamination.

Required materials Tx6 Torx screwdriver

Required module status Off

Perform this as-needed procedure to replace the robot gripper fingers on the module. Replace all four robot fingers at the same time.



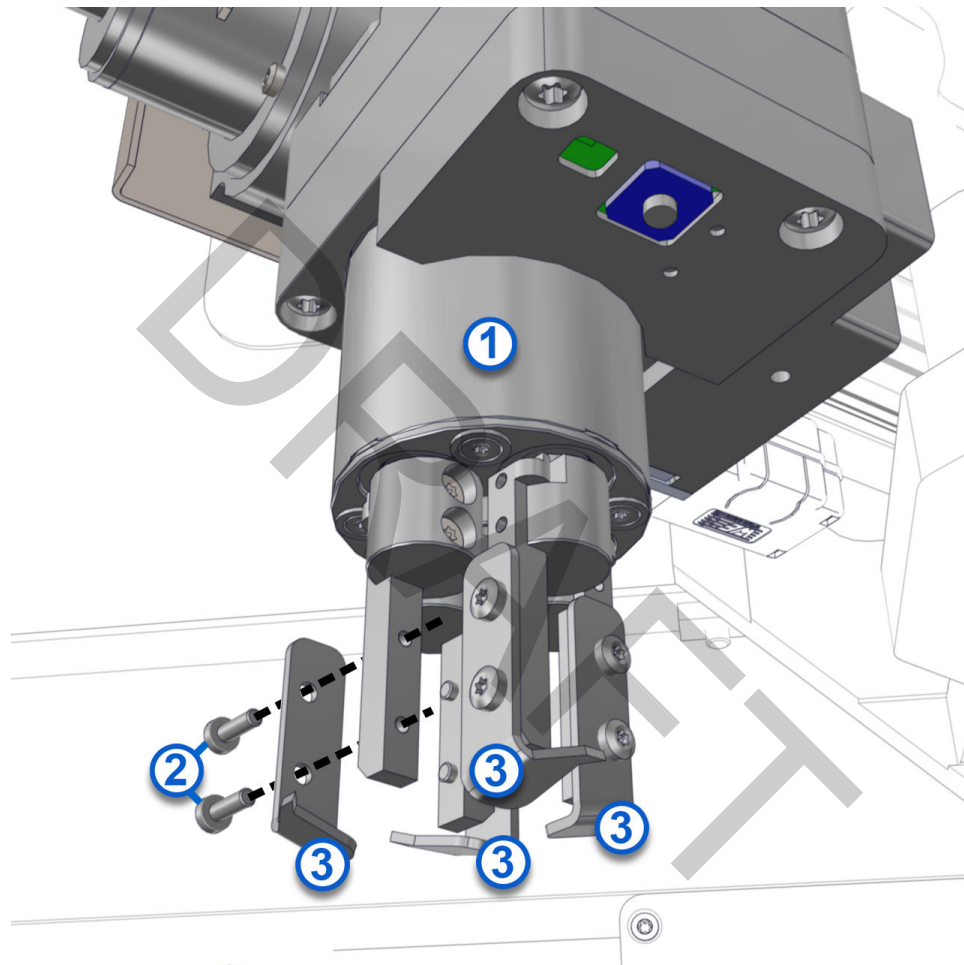
CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury can occur when module covers are opened and closed.
- Protect the head when working on modules with open module covers.

- Frequently observe the functionality of the opening mechanism. Regular visual inspection of the covers is necessary during maintenance to ensure proper operation.

NOTE: Inspect all four robot gripper fingers and replace any defective robot gripper fingers and their screws. The robot gripper fingers can only be installed in one position by design. The procedure for replacing the robot gripper fingers is identical for all four fingers.

Figure 22: Robot gripper head, robot gripper fingers, and screws



1. Open the module cover.
2. Rotate the robot gripper head [1] to position the robot gripper finger [3].
3. Loosen both screws [2] on the robot gripper finger [3] with the Tx6 Torx screwdriver.
4. Remove the screws [2].
5. Remove the robot gripper finger [3] from the bracket.

NOTE: Ensure that the orientation of a new robot gripper finger [3] in the bracket is the same as the robot gripper finger that was removed.

6. Position a new robot gripper finger [3] in the bracket and secure the new robot gripper finger with new screws [2].
7. Tighten the screws [2] with the Tx6 Torx screwdriver.
8. Close the module cover.
9. Power on the module.

Related information...

As-needed maintenance procedures, page 62

Open and close the front and rear module covers, page 36

Power on the module, page 39

Power off the module, page 41

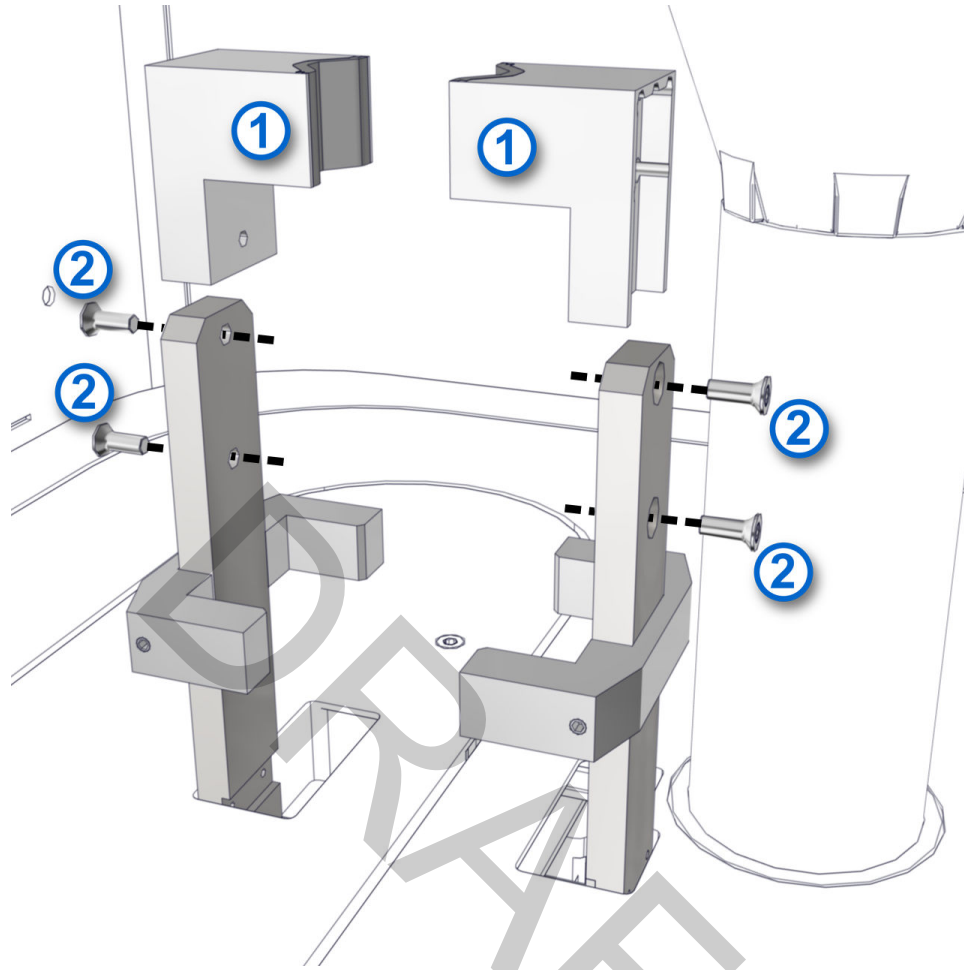
Replace the clamping jaws on the AccessPoint

Required materials Tx10 Torx screwdriver

Required module status Off

Perform this as-needed procedure to replace the clamping jaws on the AccessPoint.

NOTE: Both clamping jaws and screws must always be replaced at the same time.



1. Open the module cover.
2. Loosen both screws [2] on the clamping jaws [1] with the Torx screwdriver and remove the screws.
3. Remove the clamping jaws [1] from the mounts.
4. Insert a new clamping jaw [1] onto each mount.
5. Insert new screws [2] into each mount and clamping jaw [1] and tighten the screws with the Torx screwdriver.
6. Close the module cover.
7. Power on the module.

Related information...

As-needed maintenance procedures, page 62

Open and close the front and rear module covers, page 36

Power on the module, page 39

Power off the module, page 41

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Introduction

Problems with the ScrewCapper Module are characterized by symptoms. Troubleshooting tools, references, and suggested techniques help to trace the symptom to one or more root causes.

After determining the root cause, perform the corrective actions to resolve the problem.

Before troubleshooting is performed for system errors, the module status must be Offline.

The laboratory staff may perform procedures that are included in this manual. Procedures not included in this manual may be performed only by an Abbott Laboratories representative or an authorized service representative.



CAUTION: Do not remove samples from a CAR or the track. If samples are removed from the track, they must be deleted from the Track Sample Manager before they are placed back in the Input/Output Module for appropriate routing.

Related information...

[ScrewCapper Module observed problems](#), page 68

ScrewCapper Module observed problems

Observed problems provide information about problems that may occur on the ScrewCapper Module and provide corrective actions that help to resolve the problems.

If the corrective actions for an observed problem do not resolve the problem, contact the local representative or find country-specific contact information at corelaboratory.abbott.

Related information...

[Troubleshooting](#), page 67

[CAR with sample does not move to the module](#), page 68

[Error message is displayed](#), page 68

[Robot does not respond](#), page 69

[Samples are not sealed](#), page 69

[ScrewCaps are lost](#), page 69

[Pullout compartment does not open or close](#), page 69

[CAR stops at the AccessPoint then will not move](#), page 70

[CAR moves through the AccessPoint without stopping](#), page 70

[Samples stick to the clamping jaws](#), page 70

CAR with sample does not move to the module

Probable cause	Corrective action
A module error occurred.	Follow the error dialog on the touchscreen user interface.
Errors with the Track Sample Manager (TSM) or Track Workflow Manager (TWM) occurred.	<ol style="list-style-type: none">1. Verify the TSM or TWM connection.2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.
An error or defect occurred involving the switch.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[ScrewCapper Module observed problems](#), page 68

Error message is displayed

Probable cause	Corrective action
An error has been detected.	<ol style="list-style-type: none">1. Follow the error dialog on the touchscreen user interface.2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...[ScrewCapper Module observed problems](#), page 68**Robot does not respond**

Probable cause	Corrective action
A robot error or mechanical problem occurred.	<ol style="list-style-type: none"> 1. Follow the error dialog on the touchscreen user interface. 2. Cycle power to the module, page 38. 3. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...[ScrewCapper Module observed problems](#), page 68**Samples are not sealed**

Probable cause	Corrective action
The robot gripper is defective.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...[ScrewCapper Module observed problems](#), page 68**ScrewCaps are lost**

Probable cause	Corrective action
Robot gripper fingers are defective.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...[ScrewCapper Module observed problems](#), page 68**Pullout compartment does not open or close**

Probable cause	Corrective action
Pullout compartment locking mechanism is defective.	<p>Follow the error dialog on the touchscreen user interface.</p> <p>Contact an Abbott Laboratories representative or an authorized service representative.</p>

Related information...

ScrewCapper Module observed problems, page 68

CAR stops at the AccessPoint then will not move

Probable cause	Corrective action
An error occurred at the AccessPoint.	<ol style="list-style-type: none">1. <i>Cycle power to the module</i>, page 38.2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

ScrewCapper Module observed problems, page 68

CAR moves through the AccessPoint without stopping

Probable cause	Corrective action
<ul style="list-style-type: none">• An error occurred at the AccessPoint• Communication between CAR and AccessPoint is interrupted.• Hardware defect of the AccessPoint.• Software defect of the AccessPoint.• Incorrect or unexpected bar code, destination, or CAR sequence.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

ScrewCapper Module observed problems, page 68

Samples stick to the clamping jaws

Probable cause	Corrective action
Glue residue left by the labels on the clamping jaws.	<ol style="list-style-type: none">1. Remove any glue residue left by the labels.2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

ScrewCapper Module observed problems, page 68

Revision history

Document control number	Revision date	Content revised
80004211-101	2023-MM-DD	Original release

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